



**PALGRAVE STUDIES IN DEMOCRACY, INNOVATION,  
AND ENTREPRENEURSHIP FOR GROWTH**

*SERIES EDITOR: ELIAS G. CARAYANNIS*



# Science, Technology, and Higher Education

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Governance Approaches on Social  
Inclusion and Sustainability in  
Latin America

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*Edited by*

Luis Antonio Orozco ·

Gonzalo Ordóñez-Matamoros ·

Jaime Humberto Sierra-González ·

Javier García-Estévez · Isabel Bortagaray

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Palgrave Studies in Democracy, Innovation,  
and Entrepreneurship for Growth

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# Science, Technology, and Innovation Governance for Social Inclusion and Sustainable Development in Latin America

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## 1.1 INTRODUCTION

Latin America and the Caribbean (LAC) is a plural and diverse region endowed with wide munificence of natural resources, peoples, and

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culture. This involves high heterogeneity across countries and several differences in terms of policy orientations, the capacity to create economic growth, and the way to meet social and environmental needs. The region has been improving in terms of GDP growth since 2016 but without substantially improving the existing income gap, poverty rate, and Gini coefficient (ECLAC et al., 2019).

Latin America is one of the most unequal regions in the world, as ascertained by several indicators concerning education, health, and social security services, as well as income and wealth distribution (ECLAC, 2019). The Inter-American Development Bank Research Network project on social exclusion in Latin American and the Caribbean has long stated that inequalities are associated with the absence of opportunities (Behrman et al., 2002).

Several initiatives like those led by the Economic Commission for Latin America and the Caribbean (ECLAC) regard projects intended to defeat poverty and enhance social inclusion (Cepal, 2006) in an effort to boost the region into the route to Agenda 2030 for sustainable development (Sustainable Development Goals—SDGs<sup>1</sup>). Such initiatives have promoted the enactment of better policies for social development through inclusive economic growth that includes social protection and the creation of work opportunities with dignifying jobs (Cepal, 2016). Likewise, the OECD LAC Regional Program (LACRP) has tried to enhance social inclusion through efforts to strengthen institutions, improve governance, and increase productivity (OCDE, 2017).

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<sup>1</sup> See SDG #10 goal 10.2 that stated “by 2030 empower and promote the social, economic and political inclusion of all irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status”.

The concept of governance began to be used in the neoliberal rationale to refer to the bargaining process and agreements between public and private organizations in the realm of issues that governments cannot face alone (Bevir, 2008). The concept appeared in New Institutional Economics' frame to mean the agreements that infuse order, mitigate the conflict, and realize mutual gains in the contractual or hybrid forms between markets and hierarchies (Williamson, 1996, 2005). Rhodes (1996, p. 652) extends this vision claiming that “governance refers to ‘self-organizing interorganizational networks’ (that) complement markets and hierarchies as governing structures for authoritatively allocating resources and exercising control and coordination”.

Governance includes not only a bargaining process and agreements between public and private actors, but also civil society and different regions and jurisdictions as happening in the European Union. In the realm of multilateral agencies like the United Nations, the World Bank, or the OCDE emerged the idea of global governance, promoting the coordination of policies among countries to pursue common goals like social and environmental development and sustainability. Then, awareness about poverty eradication for improving social inclusion and justice has been embedded in the concept of governance or good governance (Bevir, 2008).

Governance for social inclusion means that public policy does not exclusively belong to the State. Instead, several if not all actors belonging to civil society can participate in the definition of problems and the ways to solve them. Thus, governance implies hybrid structures that organize multiple stakeholders' participation in a multi-jurisdictional and multi-regional scenario in which formal and informal spaces and mechanisms of relationships and accountability can be performed (Bevir, 2008).

The idea of governance was introduced in Latin America by multilateral agencies like The World Bank, The United Nations Development Programme (UNDP), and the Inter-American Development Bank based on their interest to improve the management of international aid and funding across the region (Zurbriggen, 2011). The aid programs that want to alleviate poverty have been one of the most important efforts to introduce governance as a means to coordinate public, private, and civil organizations for social inclusion.

Here it is valuable to remember the ideas of Zygmunt Bauman about the social exclusion. He stated that “Uncertainty, insecurity’s principal cause, is by far the most decisive tool of power—indeed, its very

substance” (Bauman, 2011, p. 42). In fact “Human vulnerability and uncertainty is the foundation of all political power” (Bauman, 2011, p. 122). Then, the manipulation of uncertainty is an instrument for discrimination between us and them. Bauman understands that “The fear which democracy and its offspring, the social state, promised to uproot has returned with a vengeance. Most of us, from the bottom to the top, nowadays fear the threat, however unspecified and vague, of being excluded, proved inadequate to the challenge, snubbed, refused dignity and humiliated... On the diffuse and misty fears that saturate present-day society, politicians as much as the consumer markets are eager to capitalize”. And continues “The risks to which democracies are currently exposed are only partly due to the way state governments desperately seek to legitimize their right to rule and to demand discipline by flexing their muscles and showing their determination to stand firm in the face of the endless, genuine or putative, threats to human bodies – instead of (as they did before) protecting their citizens’ social usefulness, respected places in society, and insurance against exclusion, the denial of dignity and humiliation”. (Bauman, 2011, pp. 18–20). Finally, he proposed the alternative in terms of provision of security and safety using fear as a channel to engage voters and costumers. He saw “That alternative seems to have been recently located (...) in the issue of personal safety: current or portending, overt or hidden, genuine or putative fears of the threats to human bodies, possessions and habitats—whether arising from pandemics and unhealthy diets or lifestyle regimes, or from criminal activities, anti-social conduct by the ‘underclass’, or most recently global terrorism” (Bauman, 2011, p. 54).

In LAC countries, several initiatives began to provide support to vulnerable families to alleviate poverty and exclusion. The management of fears and uncertainty with the discourse of governance as a tool to promote democracy with social inclusion began to monger the policy and its social programs. However, the creation of collateral damages, as Bauman (2011) conceptualized the unintended consequences of policies, emerged in the region. As Zurbriggen (2011) pointed out, programs such as *Familias por la Inclusión Social* in Argentina; *Puente-Chile Solidario*; *Bolsa Familia* in Brazil; *Panes* in Uruguay; *Red de Protección Social* in Nicaragua; *Familias en Acción* in Colombia; *Programa de Asignación Familiar* in Honduras, and *Bono Solidario* in Ecuador do not contribute to improve governance and democracy with the empowerment of citizenship and social capital. These programs just created a market for



Non-Governmental Organizations (NGOs) to deliver social assistance and allowed private organizations to become providers of social services such as health care and food supply.

With the governance discourse, the first case of privatization in Latin America was the infrastructure development and public services as water and sanitary issues. The State was in charge of coordinating several actors' efforts to warranty the quality and efficiency in social services provided by privates and controlled by civil organizations. In Colombia, a group of contractors began to centralize the water services due to their capacity to sell the idea that they will be able to provide a more efficient administration. However, the entrepreneurs began to be corrupt and civil society and unions were not taken into account. The losses for mismanagement created more and more profound problems, showing that private interest could lead to more trouble for social and economic development (Ardila, 2013; Colmenares, 2013), damaging not only public services, also, in this case, the financial markets (Orozco et al., 2018). In Argentina, private multinational corporations faced several shortcomings in terms of the lack of previous studies, badly designed biddings, and deficient contracts in an inadequate regulatory framework that finalized in international judiciary tribunals and expensive lawsuits. In Honduras and Peru there is not an organized market, the tanks cars abuse with their power, the quality of the liquid is not trustworthy and the water became an expensive good (Zurbriggen, 2011). The decentralization also carried out more challenges in terms of controls and disputes for the access and management of resources, widening the gap in the concentration of wealth.

The STI policies in LAC have disjunctives between social and environmental needs and economic growth with scarce resources for creating opportunities with science, technology, and innovation (STI). It is not easy for policymakers to go beyond statistics and create with the available information new meanings to foster the decision-making that encompasses the restrictions and limitations in productivity and industrial evolution with the problems around poverty and environmental degradation. With scarce resources, dilemmas like investing in STI for the oil industry that assure several jobs instead to recover a river damaged by oil extraction, a river that in the long term assure survival, surround the policymakers that need more insight to understand ways to improve governance and straight institutions to assure social justice, environmental protection, reduce corruption and create opportunities for enhancing the quality of life.

The ideology that STI is a tool to achieve competitiveness for the nations created more damages than benefits. As the Nobel Prize Paul Krugman noted many years ago, “competitiveness is a meaningless word when applied to national economies. And the obsession with competitiveness is both wrong and dangerous” (Krugman, 1994, p. 44). The ideology was developed mainly by Michael Porter in which the US’s neoliberal interest spread a model that nations must be managed as a private corporation instead of creating conditions for welfare (Aktouf, 2008). Aktouf et al., (2005, p. 184) stated that “For Habermas, the morality of a given utterance depends on the dialogical exchange made up of a claim to validity by a speaker, objections to this claim by other speakers, and arguments by the speaker in response to these objections, all of which occurs within the framework of a space of free speech. The problem here is that Porter’s positivism imposes the number and nature of competitive forces and the result of the ensuing analysis of industries as scientific and therefore non-debatable truths. It is in this sense that Porter’s model is a formidable instrument of domination”. Then, Aktouf (2008, p. 170) questioned “*¿Se puede impunemente transformar de esta manera a los Estados en comités de gestión de los intereses financieros transnacionales, y a las naciones en espacios dedicados únicamente a la competencia entre gigantes empresariales obstinados en acaparar el único resultado presentado como deseable en todo lo que hacen: la multiplicación más rápida posible del dinero por el dinero mismo?*” Porter’s framework cannot explain the reality of market dynamics and, instead, provided simplistic toolkits for managers—diamonds, forces, and chains—to promote the creation of profits in a struggle between firms and countries in wild capitalism (Aktouf, 2004).<sup>2</sup> Aktouf (2008, p. 177) concludes that “*Al convertir al planeta en un gran campo de batalla para la competitividad infinita, bajo el sólo apremio de la maximización de los beneficios y los dividendos, Porter nos conduce tan simplemente a hacer depender lo macroeconómico de lo microeconómico y las políticas nacionales*

<sup>2</sup> “The determinants in the diamond model are a necessary reduction to enable the continuity of Porter’s reasoning, in that he attempts to compare different economies without having to concern himself with their differences. It is not easy to compare the maximalist financial logic of the self-regulated, American-styled capitalist market (which in recent times has moved towards unimaginable and irrational summits of speculation since the heady rush engendered and maintained by Internet businesses and the Enron and Worldcom scandals) to the kinds of ‘stale-regulated, social-market’ industrial capitalism found in Germany and Japan” (Aktouf, 2004, p. 28).

*de las decisiones del mundo de los negocios. El tratamiento de la economía sólo se concibe en un muy corto plazo, agravando exponencialmente los desequilibrios, ya desastrosos, entre el Norte y el Sur, y entre los factores de producción mismos (capital, trabajo y naturaleza)”*.

The movement of competitiveness and public policies’ orientation includes STI as a key tool to achieve better indicators in terms of market shares and corporative profits, instead of addressing social and environmental challenges such as poverty, social inclusion, and climate change. The movement of automation and the application of management science and operation research in the name of the advancement of science has been helping entrepreneurs to cut costs in re-engineering process and low wages (as the gospel of Porter instigates), firing people in downsized hierarchies and replaced humans with machines and algorithms. The damage created with the promotion of this ideology sells more than others the belief that competitiveness through STI is the main goal for countries, and the wealth created is distributed around the nation (Gough, 1996). However, the analysis of the crisis of capitalism reveals that the concentration of wealth has been increasing with income inequality (Goda et al., 2017). As Dutrénit and Sutz (2014) show, there is no linear correlation between innovation and international competitiveness, growth, and equal income distribution. The governance of STI between public policy and private corporations with the proposal to make profits and pay more taxes did not improve human development. We agree with the distinguished professor Deirdre McCloskey that “Competitiveness is not a word that a serious economist ever uses” (McCloskey, 2019, p. 2) and the fact that the Sustainable Development Goals (SDGs) does not include the term competitiveness in their discourse.<sup>3</sup>

The United Nations stated that “social inclusion is defined as the process of improving the terms of participation in society, particularly for people who are disadvantaged, through enhancing opportunities, access to resources, voice and respect for rights” (UN, 2016, p. 17). There are several issues in the field of STI to discuss to better understand the process of social inclusion due to the advancement of scientific knowledge. Knorr-riinga et al. (2016) present the debate around frugal innovation. This concept emerged to refer to the new product and services created to solve problems or attending needs for a lot of poor people at the bottom of the

<sup>3</sup> <https://www.undp.org/content/undp/en/home/sustainable-development-goals/background/>.

pyramid, creating a “win-win” business in which companies contribute to poverty alleviation at the same time that creates profits, instead of that “frugal innovation will merely exacerbate capitalist exploitation and inequality” (Knorringa et al., 2016, p. 143). Kuhlmann and Ordonez-Matamoros (2017) edited a Handbook that addressed a well-known critique of the questionable links between economic growth and social welfare. This might be well known and discussed by this research community but much less popular to a significant part of the science and policy community, especially those involved in developing and governing emerging technologies. For example, do social inclusion results from the transfer of new technologies that communities cannot control? Developing the concept of social value as a result of the creation and use knowledge to develop communities with their own capacities to solve their problems and improve their possibilities to enjoy welfare with dignity, Orozco and Chavarro (2011) showed that solutions imposed in a top-down scheme by the government failed in the case of Chagas disease in Colombia. The scientific solutions supported in the co-design with the community using a bottom-up schema emerged and showed how shared governance of STI could promote welfare and social inclusion. Another example shows how the integration of techno-economic networks in which government, researchers from public and private institutions, not-for-profit organizations, and local communities translate the advancements in biotechnologies to improvements in productivity, increasing the social inclusion for peasant families to the potatoes corps in Colombia (Orozco et al., 2007). Analyzing national innovation systems and social inclusion, Dutrénit and Sutz (2014) evidenced that clear incentive is needed to introduce social inclusion research in research centres and universities and concludes that greater involvement of the innovation beneficiaries is crucial to the success of any social policy. Then the research founded that a multidisciplinary and beneficiary participatory approach to design effective inclusive innovation policies is needed to improve results. In this way, Bortagaray and Gras (2014) show the cases from Bolivia, Colombia, Ecuador, and Peru in the light of the general discussion of STI for inclusive development. The chapter highlights how traditional knowledge and know-how toward searching for solutions for national and local problems are at the center of the discussion. These shifts in STI policy frameworks are still in the planning phases, but deliberation and participation seem crucial for building capabilities and expanding the choices about STI policies for development goals.

Another example is provided by the different points of view for policies that promote social inclusion. For example, formalizing employment for public agencies means the dignification of work and access to social security and statal support and protection. For informal vendors, it means the loss of dignity due to new conditions of schedules, accountabilities, and less freedom to perform work by their own will. Another issue in STI is the differentiation between users and beneficiaries of scientific and technological advancements. Researchers in molecular biology and biotechnologies could develop new techniques to produce milk with more nutritional compounds. The users are the enterprises in the business of breeding and growing cows, and the beneficiaries could be the children who receive, probably in public dietary programs, the new milk.

The governance and management of STI (GMSTI) and their role in explaining both economic development and social transformation is a growing topic of interest in the international literature, attracting academic, policy, and practitioners' attention alike. In this field, questions increasingly arise regarding GMSTI main features, challenges, and positive and negative effects in Latin America as a developing region that has some valuable lessons to offer. We claim that Latin American scholarly work on the topic has been dramatically underexploited, while its relevance is acknowledged for a better understanding of GMSTI challenges and opportunities in the global north.

Efforts in the investment and promotion of STI, which can create opportunities to overcome social exclusion and advance in sustainability, are modest in Latin American countries. According to the RICyT (2019), the investment in STI, which means just 3% of the world, reach 0,64% of the GDP in 2017 and is characterized by the high concentration. Brazil, Argentina, and Mexico represent 86% of LAC investment. In terms of human capacity, the LAC countries present 1,73 researchers for every one thousand economically active populations, while countries like Spain are near 10 (RICyT, 2019). In terms of education, only 1% of students belonging to LAC countries presents results at the highest levels of proficiency in mathematics, according to the Program for International Student Assessment (PISA) (ECLAC et al., 2019). Between 2009 and 2015, the mean PISA score in science performance increased from 406 to 412, almost 100 points below OCDE countries. In general, the enrolment in STI is low, and it is clear the mismatch between the professional skills with the technical requirements that have been reframing in the

context of the fourth industrial revolution (Ordoñez-Matamoros et al., 2021).

The governance between policy networks defined by law that steer guidelines to create cross-agency collaboration between several actors—government, scientists, universities, firms, able to invest and perform R&D, and the evaluation and accountability in online social networks has been one of the key advancements in understanding national innovation systems (Orozco et al., 2019). The main question is how STI governance has been developed to include sustainability with social inclusion regarding the silenced voice of those that contribute to STI governance. Governance as a means of shared administration in which the State must assure the stability of justice and force, and private organizations must attend the rest of the affairs like social services (health, education among others) using the market mechanisms, respond to the neoliberal interest of making more efficient public policy in the division of tasks in which law enforcement and incentives prevent and punish corruption and promote transparency and democracy. However, this top-down approach can be discussed with several cases in the field of STI studies. The way to overcome the social exclusion, understood as a collateral damage that takes advantage of the fears and risks, as Bauman (2011) pointed out, is to develop governance mechanisms in which STI lead to opportunities that dignify the work with the creation of social value that empowers the community to solve their own problems and attend their needs (Orozco & Chavarro, 2011).

One of the most valuable contributions to advance in critical thinking to imagine and create new governance models is with cases, explanations, and theoretical insights that allow studying the efforts to steer governance toward social inclusion and sustainability. Policymakers and practitioners, in general, need to learn from more cases and experiences to figure out how to rethink their own systems. Thus, this book is a tool to find theoretical approaches and empirical analyses that shed light on broad and specific features in several topics such as sustainability, higher education policy, and institutional models, and funding experiences and challenges, among others. Furthermore, scholars will find some novel methodological approaches and theoretical debates that help improve future research while learning from experiences in the Latin American context. Scholars can also find academic material to support their teaching activities, using cases to enrich their approaches on GMSTI.